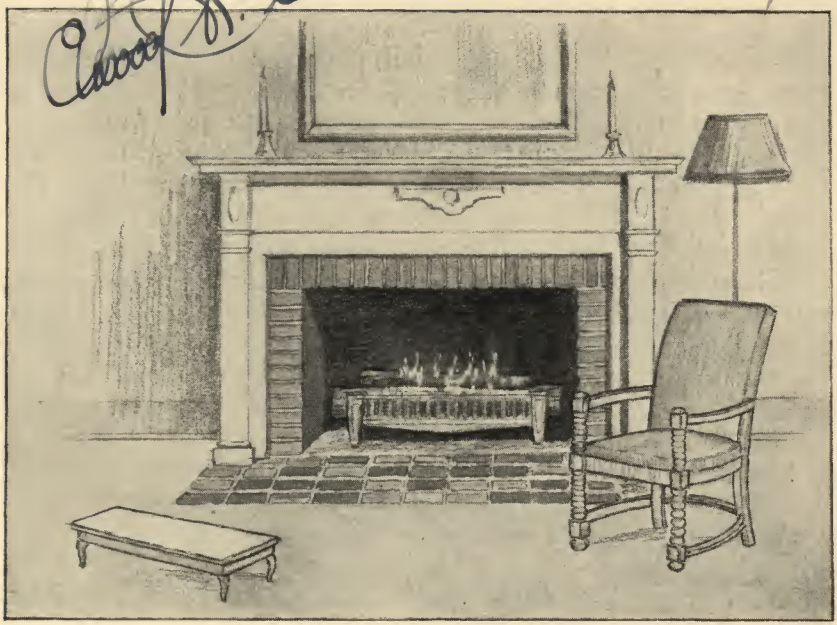
DONLEY
Book of
FIREPLACES



Hearth and Home

THE subject of a fireplace looms large in the minds of husband and wife who are planning to have a home. Those who come to this momentous task with some previous experience in rented homes and apartments are determined to make "their own home" distinctively charming, and to avoid in it all the various things that were wrong with their previous abodes.

Whether it is the intention to build or to seek for a home already built, the fireplace justly commands studious attention, for it holds greater possibilities of distinction, coziness, charm and decorative interest than any other single feature. The familiar phrase, "hearth and home," presents a context that is backed by the instincts and traditions of thousands of generations of our ancestors. Many authorities believe that the first idea of building a roof and four walls came through the need of protecting the fire on the hearth. Sociologists tell us that the tribal fire of primitive people was their most sacred possession, worshipped as a deity, and that family life only became possible when the individual was permitted to withdraw his own share of fire from the tribal fireplace.

The status of the fire on the hearth then became that of the intimate, household god; most jealously tended because to have it go out was both a practical and spiritual calamity. Nor could your fire be relighted from the fire of another family; that would have been profanation. It must be reproduced by the friction of two pieces of wood and with due religious observances.

Many early and medieval writers speak interestingly of the fireplace. But it was not until the middle af the eighteen century that much seems to have been done toward analyzing its practical problems. Benjamin Franklin discussed them, chiefly for the purpose of showing defects and promoting the idea of the Franklin stove. It is interesting to learn from his comments that most of the old-fashioned fireplaces smoked.

"Most of the old-fashioned Chimneys in Towns and Cities," Franklin wrote in 1844, "have been of late Years reduced . . . by building Jambs within them and narrowing the Hearth and making a low Arch or Breast. These new Chimneys," he remarks, "tho they keep the room generally free from Smoke and . . . will allow a door to be shut, yet the Funnel still requiring a considerable Quantity of Air, it rushes in at every crevice so strongly as to make a continual whistling or howling and; it is very uncomfortable, as well as dangerous to sit against any such crevice."

The man of Franklin's period who did the most for fireplace practice is known to fame as Count Rumford. Many an American who has encountered bare mention of this name in connection with fireplaces has wondered what the man's nationality might be. The name sounds English but the title of count is unknown in the catalogue of English nobility.

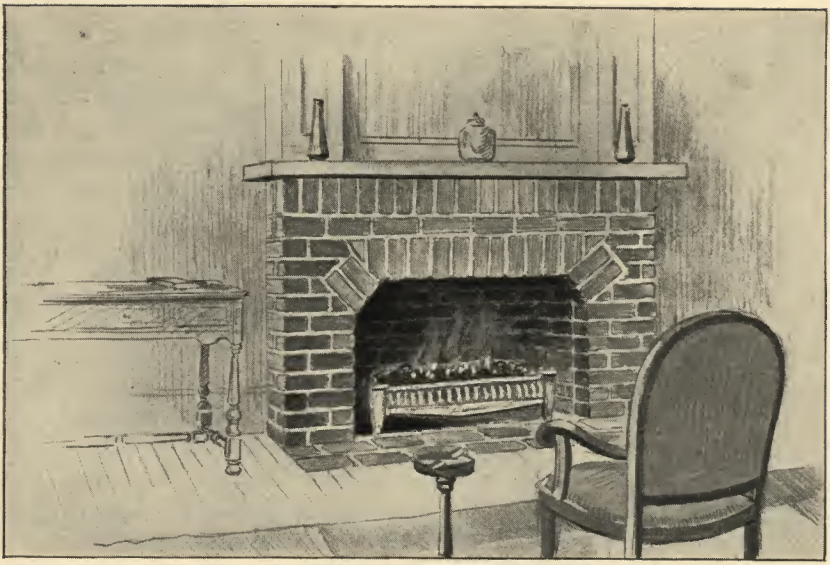
The fact is that Count Rumford was a Massachusetts Yankee, named Benjamin Thompson. While one of the ablest men of his day, a scientist, statesman and scholar, he forfeited much possible American fame, when he sided with Tories in the Revolutionary war, and later passed his life in England and Bavaria, chiefly.

Count Rumford's work on fireplaces represents an enthusiasm that lasted throughout his life. The designs presented in this book vary only in minor degree from the principles and dimensions which he advocates. His ideas are set forth in his own words in an essay of 1798, which has been republished in various forms. While the work of an exact mind, the writing is somewhat involved and makes difficult reading.

He performed a valuable service, however, in pointing out the practical defects of the huge, deep, fireplaces, with their scanty warmth, wasteful use of fuel, their violent draft and their tendency to smoke. He reduced the fireplace to a practicable size and tremendously improved the radiation of heat by shallow wall depth and by splaying the side-wall in such a way as to give the fireplace the general shape and function of a reflector.

To the couple who are deep in the fascinating task of home preparation; who spend long evenings over every detail of carefully devised plans, we bespeak the most attentive consideration to the fireplace and all that goes with it. May it be a worthy shrine of those undying sentiments and traditions with which its history is so inseparably connected.

Above all, may it never deserve the stigma of a cold fireplace, for no formal correctness of design, no prestige of ornament will compensate for the lack of a frequent and cheery blaze on the hearth. May the mere presence of your fireplace be a constant temptation to kindle the glowing coal or the crackling log; a standing invitation to gather and commune in the most primitive and most enduring of fellowships, the fellowship of the fireside.



Fireplace Exteriors

THE home planner's first interest in his fireplace generally has to do with its external features, size, appearance, and harmony with the general decorative plan.

The owner is fortunate, at this juncture, who has the help of an architect or of a mantel concern that maintains an expert designing department, but in the final decision which falls upon his own shoulders he may find the following brief suggestions helpful.

Avoid the impulse to make an over-ornate fireplace. It is not necessary and frequently does not "compose" itself into the general interior picture. If any general architectural motive runs through the woodwork and decorations, do not select a contrasting architectural motive for the mantel.

Fireplace building is usually a mason's task, since the interior is of fire-brick. The all-brick fireplace may be considered first, therefore, as it presents the obvious advantage of having the fireplace completed in a single operation by the same mechanic who must construct its interior.

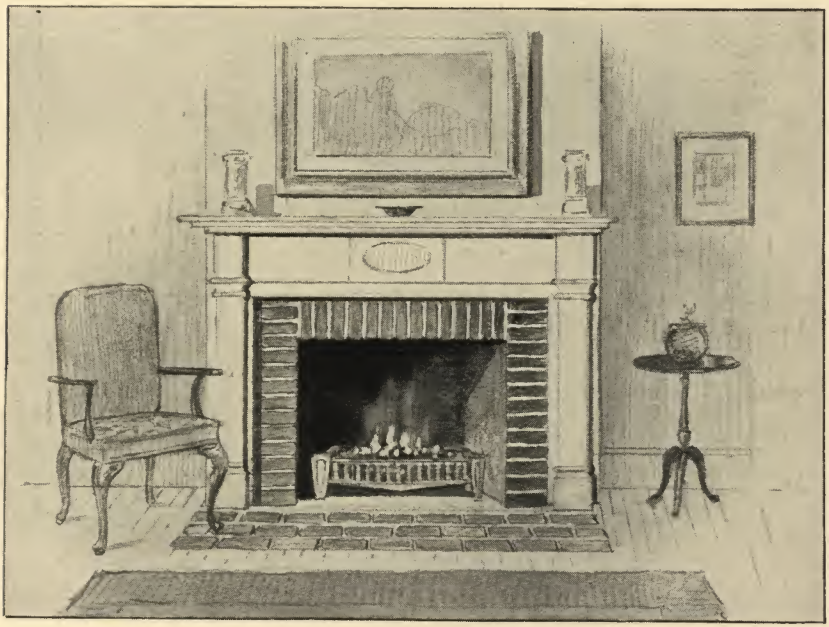
Every variety of standard face brick lends itself to fireplace construction, giving an effect of richness and sturdiness. Slight varia-

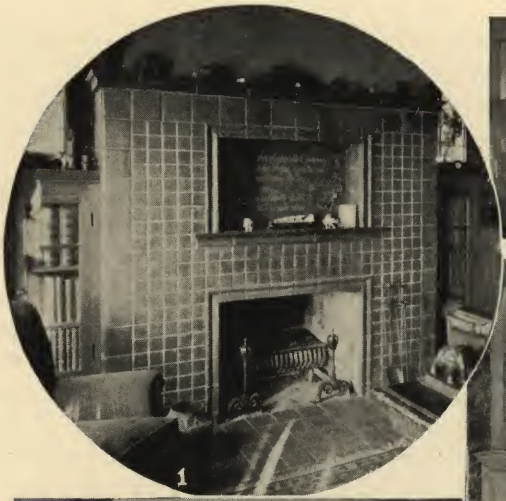
tions in the bond and spacing of the brick offer a pleasing variety of decorative effects. Many of the larger brick companies, too, make special fireplace bricks, smaller than the standard face brick, as well as decorative tile panels. There is scarcely any limit to the color treatment.

When not made of brick, the fireplace front may be of tiles, of stucco, of wood or may be bought entire in the form of an iron casting, although this latter form of mantel is not as prevalent as in past years.

Beautiful mantel fronts, not unduly expensive, are made by wood-working companies and are finished like the other woodwork. A combination of a rich face brick immediately around the fireplace opening, with upper and side panels of wood, is justly popular. The cabinet-work may vary from the simple medieval treatments, of which mission is a familiar example, to the heavily ornate Jacobean, the delicately classical Georgian designs, with their fluted columns, or the plainer colonial outlines, some of which can be executed with plain surfaces and simple mouldings.

Interspersed through these pages will be found a variety of simple, suggestive pencil drawings, which we hope will assist the reader in visualizing the fireplace he hopes to have for his own.




1


2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6

Internal Fireplace Design

BY this time you have decided what kind of *looking* fireplace will harmonize best with the home's interior. But the real purpose of this booklet is to help you to own a fireplace that will *be* just as good as it *looks*.

If we succeed in this, we will save you from a disappointment that overtakes thousands of the owners of new homes every year. A cool evening comes when somebody says, "Let's have a jolly little blaze." But the result is a smudge that starts everybody to coughing and blackens the front of the new mantel.

The fiasco may take a different turn. But the outcome of fire troubles is the same in any case—no more fires are built; with inevitable loss of home interest and loosening of home ties.

Nos. 1 and 3, Tile fireplaces by the Art Tile & Fireplace Co. No. 2, Brick fireplace by A. W. Chapman. No. 4, Old Colonial fireplace. No. 5, Stone fireplace, Barton Manor, Bridgeton, N. J. No. 6, Tile fireplace built under supervision of Charles E. Tousley, architect, by Fisher & Jirouch.

(Nos. 4 and 5 copyrighted by Underwood & Underwood.)

So we offer the following discussion of the interior design and mechanism of the fireplace, keeping in mind four objects:

1—Ready combustion of the fuel.

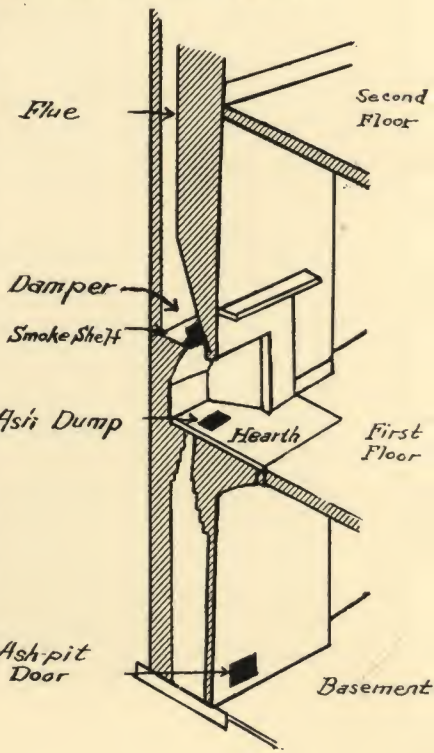
2—The discharge of all the smoke and gases up the chimney.

3—To maintain a volume of draft in proportion to the amount of flame.

4—To radiate the greatest amount of heat in proportion to the fuel used.

Quaint pictures of immense fireplaces in colonial homes sometimes tempt modern home-owners to build a fireplace out of proportion to the size of the room. The larger the chimney, the greater the exhaustion of air from the room and the greater the forced in-draft from doorways, window crevices, etc. Franklin testified that, in the old-fashioned big fireplace, this draft was most uncomfortable. A fire that fills so large a fireplace will be too warm for a room of moderate size.

The best general advice is to fix upon a moderate size for your fireplace. A living-room with 300 square feet of floor space, or less, is very well served by a fireplace 30 to 36 inches wide. Fire-places of 42-, 48-, 54- and 60-inch widths should only be constructed in rooms of correspondingly greater dimensions. Even in the large room, a small 24-inch fireplace may often present the most harmonious effect, even though it cannot dominate the interior.



RELATION OF FIREPLACE SIZE TO FLUE SECTION

IF the chimney is completed before the question of the fireplace is taken up, there is another limiting factor to the size. The fireplace opening should not be more than ten times the net area of the flue section. Thus a fireplace 36 inches wide and 30 inches high has an opening of 1080 square inches. The smallest flue to be considered for such

a fireplace would be 108 square inches, practically equivalent to the inside measurement of an 8½ by 13-inch flue lining.

A factor of safety in flue size is advantageous, up to 50 per cent. excess over the above requirements. A greater factor presents no noticeable advantages.

The ideal flue has a circular section, owing to the tendency of smoke to ascend in a spiral column. Next best is a square, or nearly square section. A section markedly oblong should have a factor of safety in its sectional capacity.

Flues that slope to one side in reaching the main chimney should have a factor of safety corresponding to the degree of slope. The greatest allowable angle is 30 degrees from the perpendicular.

VARIABILITY OF FIREPLACE DIMENSIONS

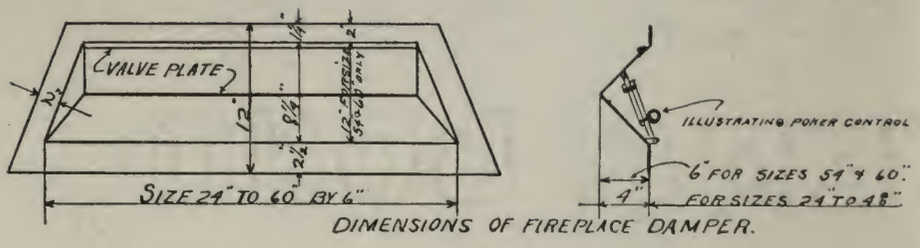
WITH this book is presented a plan-sheet, carrying designs that have been found to work well under all conditions. The plan shows only a single size, however, and warning is issued against the conclusion that, in building a large fireplace, it is only necessary to take the plan of a small fireplace and enlarge the dimensions.

This is a mistaken idea. The table of limits shown on the sheet will guide in all changes of scale. It is noteworthy that width is the principal variable. Height is pretty well fixed in practice at 30 to 34 inches, probably with deference to the height of flame, and also with some view to proper mantel height. Depth is determined to a certain extent by wall depth or by the feasible projection into the room. There are no advantages in specially high or deep fireplaces and many disadvantages. If you want a larger fireplace, make it wider and, only in minor degree, vary its height or depth.

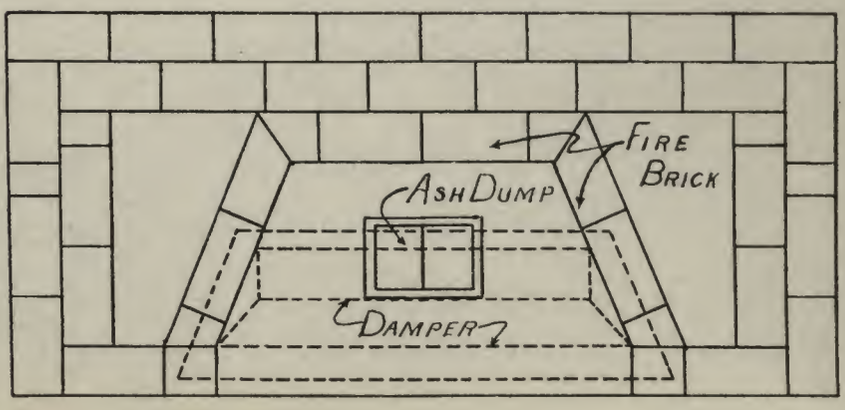
SHAPED FOR RADIATION OF HEAT

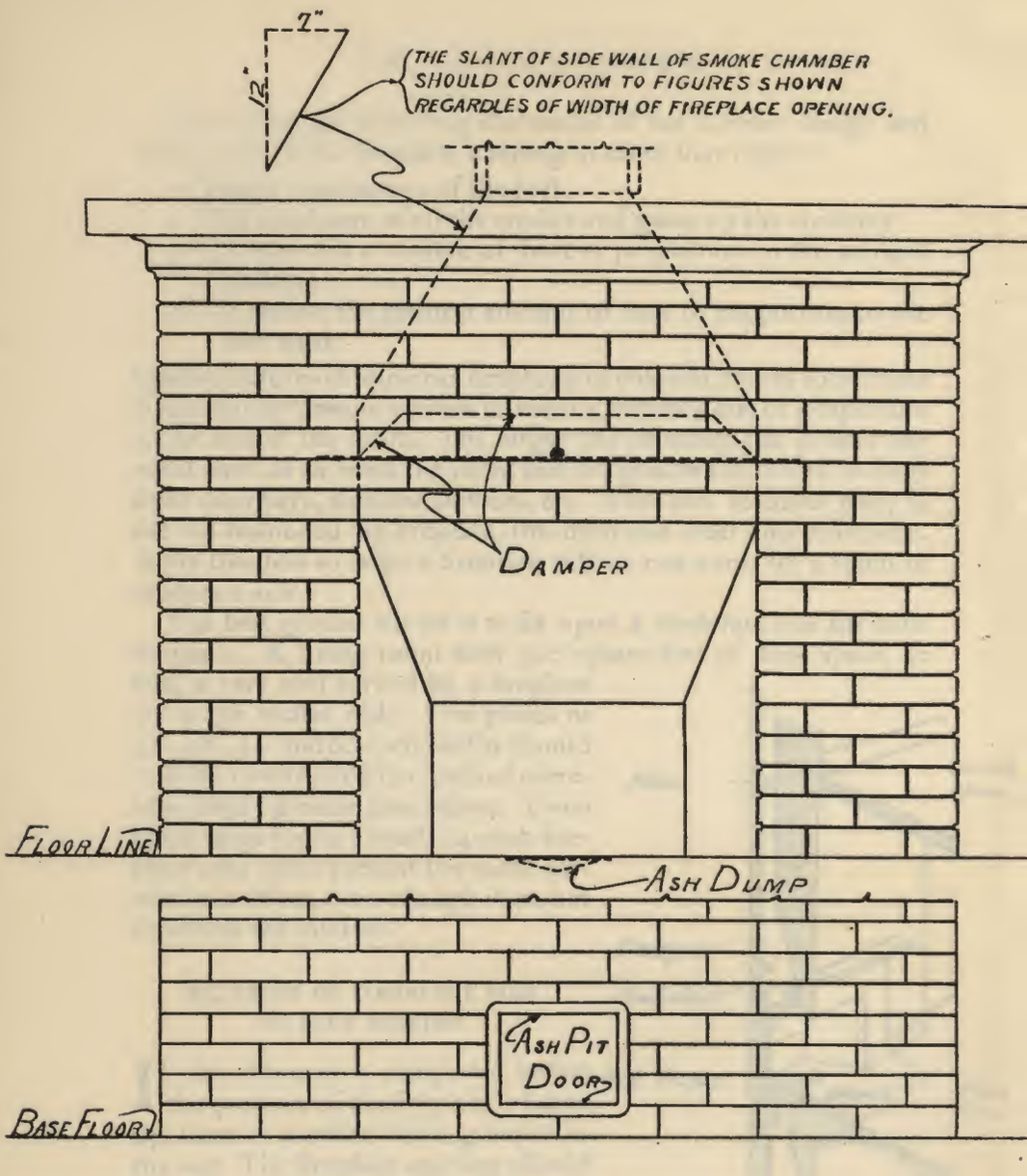
THE shape of a fireplace has much to do with the amount of heat that is radiated in a room. By making the wall depth too great, or by making the ascent of the flame too nearly vertical, much heat is lost up the chimney.

The shape of the side-wall is also very important to the giving off of warmth. Right-angle side-walls with square rear corners create a corner area in which some heat is wasted, having a tendency to pass up the chimney and be lost.



DIMENSIONS OF FIREPLACE DAMPER.





Plan-sheet of Firep

Standardized interior design to be used in conn

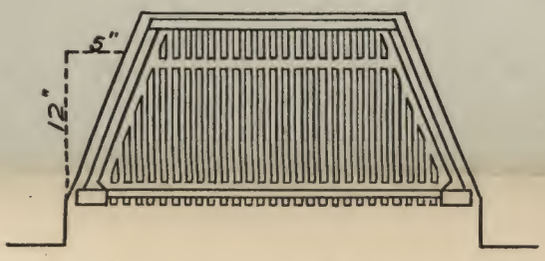
Issued by The Donley Brot

Table of Dimensions

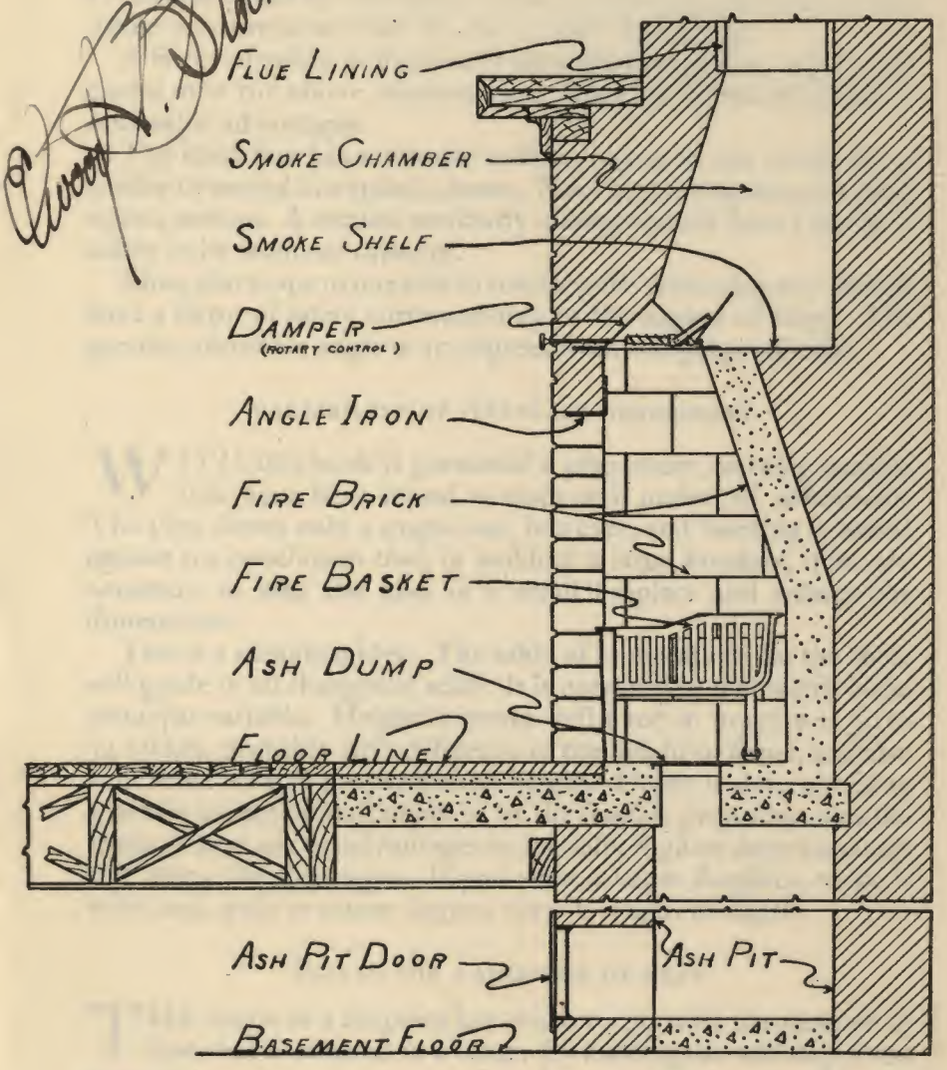
Width of Opening	Approximate Height	Use Damper Number		* Flue Size	
		Rotary Control	Poker Control	Regular	Round
24	28	324	224	8½x13	10" Dia.
28	28	330	230	8½x13	10" "
30	30	330	230	8½x18	12" "
34	30	336	236	8½x18	12" "
36	30	336	236	8½x18	12" "
40	30	342	242	13 x 13	15" "
42	30	342	242	13 x 13	15" "
48	33	348	248	13 x 18	15" "
54	36	—	254	18 x 18	18" "
60	39	—	260	18 x 18	18" "

* Note—Net flue area should be at least one-tenth that of fireplace opening.

Wall depth should be of 18 to 20 inches for small fireplace, with little advantage in depth of more than 24 inches for larger fireplace.



ILLUSTRATING BASKET SET IN FIREPLACE AND CORRECT SLANT OF SIDE WALLS.

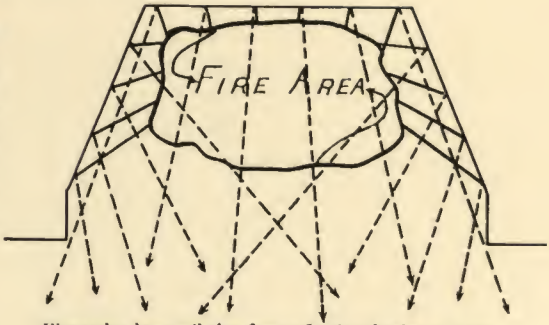


ce Construction

on with table of dimensions shown above.

Co., Cleveland, Ohio.

The diagram shows how the rays of heat, striking the sides and back of the fireplace, are reflected out into the room when the fireplace interior has been properly shaped.



Illustrating heat radiation from a fireplace having properly designed side and rear walls.

IMPORTANCE OF STANDARDIZED WALL ANGLE

THE wall angle which we recommend and use in the plan sheet is five inches to the foot, beginning one course of brick back from the mantel front. Of course the same general result might be obtained by slightly greater or slightly smaller angle, but there is a reason for a standardized wall angle, which we would emphasize.

Two fireplace accessories, the damper and the fire-basket, must be made or selected with view to the wall angle, if a misfit is to be avoided. The Donley Damper and Donley Fire-Basket, illustrated in the back of this booklet, are both coördinated with our plans in respect to wall angle.

The angle of 5 inches to the foot was selected after consultation with many successful fireplace builders and the examination of hundreds of plans, as well as much practical experiment. It represents a wide consensus of opinion. We do not aim to introduce a special form of fireplace in the interest of Donley Dampers and Fire-Baskets, but we do recognize the desirability of a standardized wall angle in the interest of better fireplaces and have taken our own first step in that direction.

THROWING THE HEAT FORWARD

EXAMINATION of the plans also shows the upper part of the back wall of the fireplace sloping forward, meeting the rear flange of the damper a few inches above the elevation of the fireplace opening.

This slope of the rear wall also performs an important function in deflecting heat into the room. The rapidly ascending air current constantly tends to draw the heat up the chimney. Ascending heat waves, striking the sloping back, are thrown forward beneath

the breast wall, while the smoke is drawn upward through the throat into the smoke-chamber and out the flue.

PLENTY OF HEAT BUT NO SMOKE

TO draw off all the smoke and gases without losing an undue amount of heat requires an accurate adjustment of the throat aperture. This can only be effected by means of a dependable damper under easy control. A throat of fixed size that was right for one fuel would not be right for another fuel.

Other things may cause smoking, besides the wrong size or throat aperture. For example:

1—Roughness of the fireplace throat.
2—Too narrow a throat, that is, a damper not as long as the width of the fireplace opening.
3—Rough masonry in the smoke-chamber or in the flue.
4—Too small a flue.
5—Too low a position of the damper and throat.
6—Arched openings are more liable to cause smoke than rectangular opening.

SELECTING AND PLACING OF DAMPER

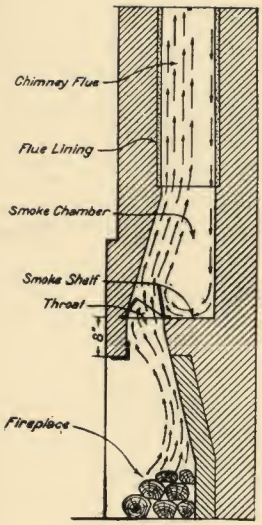
THE Donley Damper is an effective safeguard against several of the chief causes of smoking. It is more than a damper. It offers a complete metal throat passage, insuring a smooth means of exit for the products of combustion, out of the fireplace and into the smoke chamber.

The Donley Damper also offers you a certain means of getting sufficient throat capacity, providing only you use the right size of damper. Select the size, in inches, corresponding to the width of your fireplace opening. If your opening is an "in-between" size, use the next larger size of Donley Damper.

We recommend placing the Damper one to three courses of brick above the breast line of the opening. The higher position offers a greater security against smoke eddies. The lower position tends to give more heat.

SMOKE-CHAMBER AND SMOKE-SHELF

FROM the throat, the smoke passes into the smoke-chamber, which has a pyramid-like section as it narrows to the size of the flue. Its sides should have a slope of about 7 inches in 1 foot of height. Too abrupt an angle congests the smoke and causes



Showing how down-draft is diverted upward from smoke-shelf. This and diagram opposite taken from U. S. Govt. pamphlet.

eddies in the room. The interior masonry should be smooth and the outlet to the chimney accomplished without obstacle.

Where the flue is offset in order to reach a chimney-stack a few feet distant, the offset should not be started in the smoke-chamber. Finish the chamber exactly as though the flue were to be straight and commence the flue slope where it connects with the chamber. Otherwise the fireplace will draw unevenly on the two sides.

Between the damper and the rear wall of the chamber is the horizontal surface of the smoke-shelf. Located directly under the flue, it arrests falling soot and acts as a baffle for the down-draft, breaking its force and deflecting it upward into the ascending current.

The smoke-chamber must be large enough and properly shaped if the fireplace is to work well. Its cubic capacity reduces the violence of draft impulses from above and below, giving it a sort of shock-absorbing function.

HOW TO DEAL WITH DOWN-DRAFT

THE steady current of smoke and gas up the flue tends to exhaust air in the room. If there is no other inlet of air, it must come down the flue, creating a down-draft that is one of the most potent causes of smoke eddies.

Where there is a narrow, sloping passage, instead of a smoke chamber with its smoke-shelf, the down-draft inevitably drives part of the smoke back into the room.

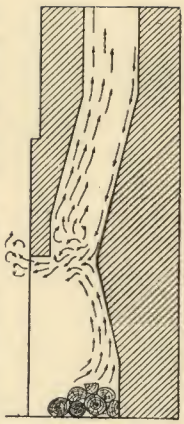
Many complicated arrangements have been devised for checking down-draft, but they are not necessary, if the two following objects have been carried out.

1—Cutting the volume of up-draft to a practical minimum by a suitable damper and thus reducing the volume of compensating down-draft.

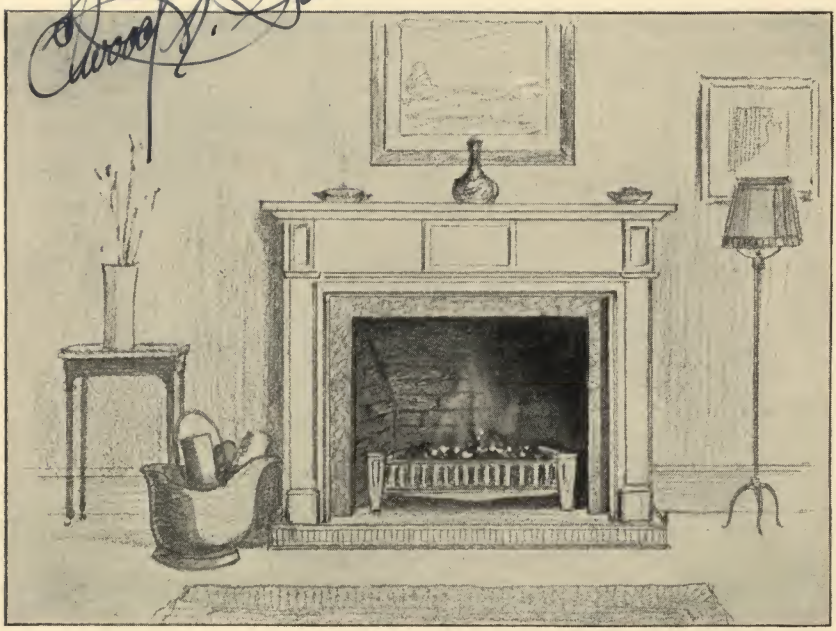
2—Arresting the force of the down-draft with a proper smoke-shelf and diverting it up the chinmey. The open valve-plate of the Donley Damper makes a sort of pocket over the smoke-shelf which accomplishes this result to a nicety.

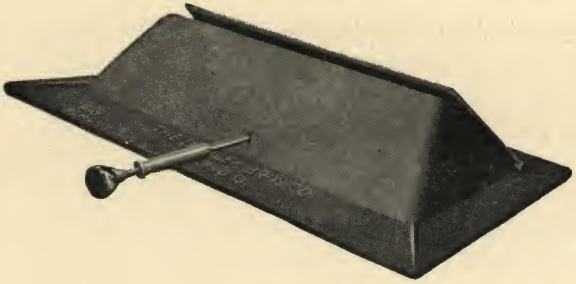
Many off-hand "authorities" on fireplace building will assure you that the only necessary thing to bear in mind is having a large enough flue—the larger the better. Down-draft furnishes the refutation of this very faulty theory. The greater the flue (unless there be a damper) the more air is sucked up the chimney and the greater the down-draft. Hundreds of fireplaces with over-size flues smoke intolerably and always will.

Follow these directions and the Donley plan-sheet. Use the Donley Damper for proper draft action; the Donley Fire-Basket for beauty, durability and convenience; a Donley Ash-Dump to shut off the dust and odor of the ash-pit, and a Donley Ash-pit Door for final removal of ashes. With this program you have done the utmost to deserve the fireside satisfaction which we cordially hope you will enjoy.



Showing how down-draft causes smoke eddies where smoke-shelf is omitted.





Rotary Control

To open or close this damper you rotate the key that protrudes through mantel front. Diagram shows mechanism.

Donley Fireplace Damper

AN indispensable aid to the proper burning of any fireplace, the Donley Damper provides a smooth, properly formed metal throat for the fireplace as well as a means of controlling the draft. It is made with two types of control as illustrated. State desired style in ordering.

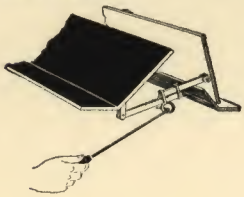
Donley Dampers simplify the mason's task in forming fireplace throat. The smooth, correct lines insure drawing off smoke and fumes without the eddies and belching of smoke.

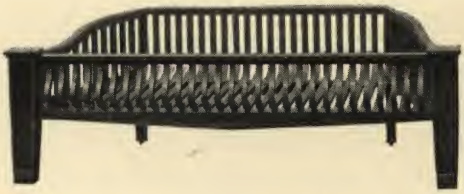
Perfect draft control by means of the Donley Damper prevents waste of heat up the chimney and gives maximum warmth with economy of fuel. It is a favorite device of house builders, everywhere, and the home owner's best guarantee of fireplace satisfaction.

Poker Control	Rotary Control	Size Front	Shipping Weight
No. 224	No. 324	24 in.	26 lbs.
230	330	30	29
236	336	36	32
242	342	42	42
248	348	48	49
254		54	80
260		60	90

Poker Control

Diagram shows how this damper is controlled by hooking an ordinary poker into ring and pushing or pulling until desired position is reached.

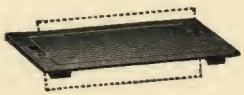




Donley Fire-Basket

BEAUTY and utility are combined in the Donley Fire-Basket. Its lines are simple, graceful and correct, and its construction sturdy enough to withstand hard usage for many years. Having no eccentricity of design it harmonizes with any decorative scheme the architect may prefer and is a ready seller for every class of residence. Remove the ends, by lifting them out, and burn wood of any length that the fireplace will take. Construction safeguards against falling out of ends, through warping. This basket narrows toward the rear at just the degree to fit a properly splayed hearth plan, solving the difficulty that careful fireplace designers sometimes experience in finding a basket to fit their plan. Experience shows that sides splayed at this angle radiate heat into the room more effectually than square-cornered fireplaces.

Front	Depth	Back	Shipping Weight
24 in.	15 in.	12½ in.	25 lbs.
28	15	16½	63
30	15	18½	70
34	15	22½	78



Donley Ash-Dumps

DONLEY Ash-Dumps are iron trap-doors closing the ash-pit and excluding dust and odor from living-rooms. They are a part of every well equipped fireplace. Automatic Ash-Dump closes itself after ashes have been pushed through it. Common Ash-Dump is opened and closed by poker. Shutters cannot come loose or fall in ash-pit.

Size	Shipping Weight Per Doz.
7x 9 in.	66 lbs.
8x 8	66
8x10	86
10x12	126
12x15	164
24x18	440
30x24 (steel door)	840

Donley Ash-pit Doors

DONLEY Ash-pit Doors are of original design, which promotes strength, neatness and close fit. Larger sizes are used for removing ashes and smaller sizes at bases of chimney flues for removing soot.

A substantial and dependable door for every purpose.

POKER-CONTROLLED

Donley Ratchet Damper

THIS damper has poker-controlled valve-plate, also sliding shutter for additional draft adjustment. A good, practical means of draft control, but without throat-forming feature.

No.	Length Over All		Shipping Weight
	Front	Back	
124	24 in.	22 in.	10 lbs.
126	26	24	11
128	28	26	12½
130	30	28	14
132	32	30	15½
136	36	34	17
142	42	40	18½
148	48	46	24